

WHAT IS CLAIMED IS:

1. An infusion system for infusing a fluid into a body of a user, the infusion system
5 comprising:
a physiological monitoring device comprising:
a monitoring device processor;
a sensor coupled to the monitoring device processor and adapted to provide an
output signal as a function of a concentration of an analyte in the user;
10 and
a monitoring device communication circuit coupled to the monitoring device
processor;
wherein the monitoring device processor is adapted to:
calculate an amount of the fluid to be infused into the user's body
15 based upon the output signal; and
cause the monitoring device communication circuit to transmit a first
set of data indicative of the amount of the fluid; and
a medication infusion device comprising:
an infusion device processor;
20 a drive mechanism coupled to the infusion device processor and adapted to
infuse the fluid into the body of the user; and
an infusion device communication circuit coupled to the infusion device
processor and adapted to receive the first set of data from the
monitoring device communication circuit;
25 wherein the infusion device processor is adapted to cause the drive
mechanism to infuse the fluid into the body of the user in accordance
with the first set of data.
2. The system of claim 1, wherein the physiological monitoring device is adapted to
30 be carried by the user and the medication infusion device is adapted to be carried by the user.

3. The system of claim 2, wherein the infusion device processor causes the drive mechanism to infuse the fluid in accordance with the first set of data automatically after receipt of the first set of data by the infusion device communication circuit.

5 4. The system of claim 2, wherein the physiological monitoring device is a blood glucose test strip monitor, and wherein the medication infusion device is an insulin infusion pump.

10 5. The system of claim 2, wherein the monitoring device communication circuit includes one of a transmitter and a transceiver, and wherein the infusion device communication circuit includes one of a receiver and a transceiver.

15 6. The system of claim 2, wherein the monitoring device further comprises an indicator coupled to the monitoring device processor and adapted to provide a notification of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the monitoring device communication circuit.

20 7. The system of claim 6 wherein the indicator includes at least one of a vibration alarm, a sound generation device, a panel adapted to display text, and a LED.

25 8. The system of claim 2, wherein the monitoring device further comprises an indicator coupled to the monitoring device processor and adapted to provide a notification of the completion of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the monitoring device communication circuit.

30 9. The system of claim 2 wherein the monitoring device further comprises a user input device for inputting a command and wherein the monitoring device communication circuit transmits the first set of data in response to the command from the input device.

10. The system of claim 2 wherein the monitoring device processor is further adapted to:

determine a first amount of time that has elapsed since the sensor provided the output signal; and

5 cause the monitoring device communication circuit to transmit the first set of data if the first amount of time does not exceed a predetermined amount of time.

11. The system of claim 10 wherein the monitoring device further comprises a user input device for inputting a command and wherein the predetermined amount of time is
10 established in response to the command from the input device.

12. The system of claim 2 wherein the monitoring device further comprises:
an indicator coupled to the monitoring device processor and adapted to provide a
display of the amount of the fluid; and
15 a user input device for inputting commands;
wherein the monitoring device processor is further adapted to cause the monitoring device communication circuit to transmit the first set of data in response to a first command from the input device.

20 13. The system of claim 12 wherein the monitoring device further comprises a monitoring device memory coupled to the monitoring device processor and adapted to store at least two fluid infusion parameters, and wherein the monitoring device processor is further adapted to:

retrieve one of the at least two fluid infusion parameters from the memory in response
25 to a second command from the input device associated with a selection by the user of the one of the at least two fluid infusion parameters; and
cause the monitoring device communication circuit to transmit the one of the at least two fluid infusion parameters.

14. The system of claim 2 wherein the infusion device further comprises:
an indicator coupled to the infusion device processor and adapted to provide a display
of the amount of the fluid; and
a user input device for inputting a command;
5 wherein the infusion device processor is further adapted to cause the drive mechanism
to infuse the fluid into the body of the user in accordance with the first set of
data in response to the command from the input device.

15. The system of claim 2 wherein the infusion device further comprises:
10 an indicator coupled to the infusion device processor and adapted to provide a display
of the amount of the fluid;
a user input device for inputting commands; and
an infusion device memory coupled to the infusion device processor and adapted to
store at least two fluid infusion parameters;
15 wherein the infusion device processor is further adapted to:
retrieve one of the at least two fluid infusion parameters from the memory in
response to a command from the input device associated with a
selection by the user of the one of the at least two fluid infusion
parameters; and
20 cause the drive mechanism to infuse the fluid into the body of the user in
accordance with the one of the at least two fluid infusion parameters.

16. The system of claim 2 wherein the monitoring device further comprises a
monitoring device memory coupled to the monitoring device processor and adapted to store a
25 first identification value associated with the identity of the infusion device,
wherein the monitoring device processor is further adapted to cause the monitoring
device communication circuit to transmit the first identification value;
wherein the infusion device communication circuit is further adapted to receive the
first identification value; and
30 wherein the infusion device processor is further adapted to compare the first
identification value with a stored identification value and to cause the drive

mechanism to infuse the fluid into the body of the user in accordance with the first set of data if the first identification value is equal to the stored identification value.

5 17. The system of claim 2, wherein the monitoring device further comprises a monitoring device clock circuit adapted to provide a monitoring device date and time; wherein the infusion device further comprises an infusion device clock circuit adapted to provide an infusion device date and time; wherein the monitoring device processor is further adapted to cause the monitoring
10 device communication circuit to transmit the monitoring device date and time; wherein the infusion device communication circuit is further adapted to receive the monitoring device date and time; and wherein the infusion device processor is further adapted to alter the infusion device date and time to be equal to the monitoring device date and time.

15 18. The system of claim 2, wherein the monitoring device further comprises a monitoring device clock circuit adapted to provide a monitoring device date and time; wherein the infusion device further comprises an infusion device clock circuit adapted to provide an infusion device date and time;
20 wherein the infusion device processor is further adapted to cause the infusion device communication circuit to transmit the infusion device date and time; wherein the monitoring device communication circuit is further adapted to receive the infusion device date and time; and wherein the monitoring device processor is further adapted to alter the monitoring
25 device date and time to be equal to the infusion device date and time.

 19. The system of claim 2, wherein the monitoring device further comprises a user input device for inputting a first command and a second command, wherein the monitoring device processor is further adapted to:
30 receive the first and the second commands; and

cause the monitoring device communication circuit to discontinue
transmissions in response to the first command and to resume
transmissions in response to the second command; and
wherein the monitoring device processor is adapted to cause the monitoring device
5 communication circuit to transmit the first set of data after receipt of the
second command.

20. The system of claim 2 wherein the monitoring device further comprises:
a user input device for inputting a command; and
10 a memory coupled to the monitoring device processor;
wherein the monitoring device processor is further adapted to:
cause the memory to store a value associated with a duration of time
established in response to the command from the input device; and
cause the monitoring device communication circuit to discontinue
15 transmissions until the duration of time has elapsed; and
wherein the monitoring device processor is adapted to cause the monitoring device
communication circuit to transmit the first set of data after the duration of
time has elapsed.

20 21. The system of claim 2 wherein the monitoring device further comprises:
a user input device for inputting a command; and
a memory coupled to the monitoring device processor;
wherein the monitoring device processor is further adapted to:
cause the memory to store a value associated with a date and time established
25 in response to the command from the input device; and
cause the monitoring device communication circuit to discontinue
transmissions until the date and time have arrived;
wherein the monitoring device processor is adapted to cause the monitoring device
communication circuit to transmit the first set of data after the date and time
30 have arrived.

22. The system of claim 2 wherein the infusion device further comprises a user input device for inputting commands,

wherein the infusion device processor is further adapted to cause the infusion device communication circuit to transmit a first command from the input device and

5 a second command from the input device;

wherein the monitoring device communication circuit is further adapted to receive the first command and the second command;

wherein the monitoring device processor is further adapted to cause the monitoring device communication circuit to discontinue transmissions in response to the first command and to resume transmissions in response to the second command; and

wherein the monitoring device processor is adapted to cause the monitoring device communication circuit to transmit the first set of data after receipt by the monitoring device communication circuit of the second command.

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23. The system of claim 2 wherein the monitoring device processor is further adapted to cause the monitoring device communication circuit to transmit a first command repeatedly for a plurality of transmissions;

wherein the infusion device communication circuit is further adapted to receive the first command; and

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wherein the infusion device processor is further adapted to:

cause power to the infusion device communication circuit to be cycled

whereby the power is removed from the infusion device

communication circuit for a first time period and is restored to the

25 infusion device communication circuit for a second time period; and

cause the power to the infusion device communication circuit to be restored

and the power cycling to be discontinued if the first command has been received.

25. The system of claim 23 wherein the infusion device processor is further adapted to resume the cycling of the power to the infusion device communication circuit after a predetermined period of time has elapsed after receipt of the first set of data following the receipt of the first command.

27. The system of claim 2 wherein the first set of data is further indicative of at least one of a medication delivery profile, a counter value, an elapsed time since the output signal was provided, an identification value associated with the identification of the infusion device, and a date and time of transmission of the first set of data.

28. The system of claim 2 wherein the monitoring device further comprises a user
25 input device for inputting a command,
wherein the monitoring device processor is further adapted to cause the monitoring
device communication circuit to transmit the command from the input device;
wherein the infusion device communication circuit is adapted to receive the
command; and
30 wherein the infusion device processor is adapted to control the infusion device in
accordance with the command.

29. The system of claim 28 wherein the control of the infusion device comprises one of a medication delivery start time, a medication delivery profile, a medication delivery rate, a medication delivery amount, a cessation of a medication delivery, an activation of an alarm,
5 a cessation of an alarm, a display of a text message, and a download of data.

30. The system of claim 28 wherein the user input device comprises one of a button, a touch screen, a voice-activated device, and a menu structure shown on a display panel that is navigated by a keypad.

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31. The system of claim 2 wherein the monitoring device further comprises a user input device for inputting a plurality of commands during a time period, said plurality of commands comprising a programming session,

15 wherein the monitoring device processor is further adapted to cause the monitoring device communication circuit to transmit the plurality of commands if the time period has elapsed;

wherein the infusion device communication circuit is further adapted to receive the plurality of commands; and

20 wherein the infusion device processor is further adapted to control the infusion device in accordance with the plurality of commands.

32. The system of claim 2 wherein the monitoring device further comprises a user input device for inputting a plurality of commands corresponding to a programming session and for inputting a completion command corresponding to a completion of the programming
25 session, and

wherein the monitoring device processor is further adapted to cause the monitoring device communication circuit to transmit the plurality of commands if the completion command from the input device has been inputted;

30 wherein the infusion device communication circuit is further adapted to receive the plurality of commands; and

wherein the infusion device processor is further adapted to control the infusion device in accordance with the plurality of commands.

33. The system of claim 2 wherein the monitoring device further comprises a user
5 input device for inputting a plurality of commands corresponding to a programming session,
wherein the monitoring device processor is further adapted to determine a calculated
time period having a beginning time and an ending time,
the beginning time corresponding to the entry of one of the plurality of
commands, and
10 the ending time corresponding to the earlier of a first event and a second
event, the first event being the entry of a subsequent one of the
plurality of commands, and the second event being the elapse of a
predetermined amount of time; and
wherein the monitoring device processor is further adapted to cause the monitoring
15 device communication circuit to transmit the plurality of commands if the
calculated time period exceeds the predetermined amount of time;
wherein the infusion device communication circuit is further adapted to receive the
plurality of commands; and
wherein the infusion device processor is further adapted to control the infusion device
20 in accordance with the plurality of commands.

34. The system of claim 2 wherein the monitoring device further comprises an
indicator coupled to the monitoring device processor,
wherein the infusion device processor is further adapted to cause the infusion device
25 communication circuit to transmit a second set of data corresponding to an
infusion device status;
wherein the monitoring device communication circuit is further adapted to receive the
second set of data; and
wherein the monitoring device processor is further adapted to cause the indicator to
30 display the infusion device status in accordance with the second set of data.

35. A medication infusion device for infusing a fluid into a body of a user and adapted for communications with a physiological monitoring device adapted to provide an output signal as a function of a concentration of an analyte in the user, calculate an amount of the fluid to be infused into the user's body based upon the output signal, and transmit a first set of data indicative of the amount of the fluid to be infused, the medication infusion device comprising:

a housing adapted to be carried by the user;
an infusion device processor enclosed within the housing;
a drive mechanism coupled to the infusion device processor and adapted to infuse the fluid into the body of the user; and
an infusion device communication circuit coupled to the infusion device processor and adapted to receive the first set of data from the monitoring device;
wherein the infusion device processor is adapted to cause the drive mechanism to infuse the fluid into the body of the user in accordance with the first set of data.

36. The infusion device of claim 35, wherein the infusion device processor causes the drive mechanism to infuse the fluid in accordance with the first set of data automatically after receipt of the first set of data by the infusion device communication circuit.

37. The infusion device of claim 35, wherein the physiological monitoring device is a blood glucose test strip monitor, and wherein the medication infusion device is an insulin infusion pump.

38. The infusion device of claim 37, wherein the infusion device communication circuit includes one of a receiver and a transceiver.

39. The infusion device of claim 35, wherein the monitoring device is further adapted to transmit a command selected by the user,
wherein the infusion device communication circuit is further adapted to receive the command; and

wherein the infusion device processor is further adapted to control the infusion device in accordance with the command.

40. The infusion device of claim 39 wherein the control of the infusion device comprises one of a medication delivery start time, a medication delivery profile, a medication delivery rate, a medication delivery amount, a cessation of a medication delivery, an activation of an alarm, a cessation of an alarm, a display of a text message, and a download of data.

41. A physiological monitoring device adapted for communications with a medication infusion device for infusing a fluid into a body of a user, the physiological monitoring device comprising:

a housing adapted to be carried by the user;

a monitoring device processor enclosed within the housing;

a sensor coupled to the monitoring device processor and adapted to provide an output signal as a function of a concentration of an analyte in the user; and

a monitoring device communication circuit coupled to the monitoring device processor;

wherein the monitoring device processor is adapted to:

calculate an amount of the fluid to be infused into the user's body based upon the output signal; and

cause the monitoring device communication circuit to transmit a first set of data for reception by the infusion device, the first set of data being indicative of the amount of the fluid to be infused and adapted to cause the infusion device to infuse the amount of the fluid into the body of the user.

42. The monitoring device of claim 41, wherein the monitoring device is a blood glucose test strip monitor, and wherein the medication infusion device is an insulin infusion pump.

43. The monitoring device of claim 42, wherein the monitoring device communication circuit includes one of a transmitter and a transceiver.

44. The monitoring device of claim 41, wherein the monitoring device further comprises an indicator coupled to the monitoring device processor and adapted to provide a notification of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the monitoring device communication circuit.

45. The monitoring device of claim 41, wherein the monitoring device further comprises an indicator coupled to the monitoring device processor and adapted to provide a notification of the completion of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the monitoring device communication circuit.

46. The monitoring device of claim 41, wherein the monitoring device further comprises a user input device for inputting a command and wherein the monitoring device processor is adapted to cause the monitoring device communication circuit to transmit the first set of data in response to the command from the input device.

47. The monitoring device of claim 41 wherein the infusion device is adapted to be controlled by a command and wherein the monitoring device further comprises:

a user input device for inputting the command,

wherein the monitoring device processor is further adapted to cause the monitoring

device communication circuit to transmit the command for reception by the infusion device.

48. The monitoring device of claim 47 wherein the user input device comprises one of a button, a touch screen, a voice-activated device, and a menu structure shown on a display panel that is navigated by a keypad.

49. A method of infusing a fluid into a body of a user comprising:
measuring an output signal produced by a sensor, said output signal being a function
of a concentration of an analyte in the user;
5 calculating an amount of the fluid to be infused into the user's body based upon the
output signal;
transmitting a first set of data with a first communication circuit enclosed within a
first housing adapted to be carried by the user, said first set of data being
indicative of the amount of the fluid;
10 receiving the first set of data with a second communication circuit enclosed within a
second housing adapted to be carried by the user; and
activating a drive mechanism to infuse the fluid in accordance with the first set of
data.

15 50. The method of claim 49, wherein the drive mechanism is activated automatically
after receipt of the first set of data by the second communication circuit.

51. The method of claim 49, wherein the sensor is a blood glucose test strip monitor
sensor, and wherein the drive mechanism is an insulin infusion pump drive mechanism.

20 52. The method of claim 51, wherein the first communication circuit includes one of
a transmitter and a transceiver and wherein the second communication circuit includes one of
a receiver and a transceiver.

25 53. The method of claim 49 further comprising the step of providing a notification of
at least one event of the group consisting of: the measuring of the output signal produced by
the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of
data by the first communication circuit.

54. The method of claim 53 wherein the notification is provided using at least one of a vibration alarm, a sound generation device, a panel adapted to display text, and a LED.

5 55. The method of claim 49 further comprising the step of providing a notification of the completion of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the first communication circuit.

10 56. The method of claim 49 further comprising the step of inputting a command with a user input device, wherein the first set of data is transmitted in response to the command.

57. An infusion system for infusing a fluid into a body of a user, the infusion system comprising:

15 means for measuring an output signal as a function of a concentration of an analyte in the user;

means for transmitting data;

a first processor capable of communication with the measuring means and the transmitting means;

20 a first program logic executed by the first processor, comprising:

means for calculating an amount of the fluid to be infused into the user's body based upon the output signal; and

means for causing the transmitting means to transmit a first set of data indicative of the amount of the fluid;

25 means for receiving the first set of data;

means for applying pressure to the fluid;

a second processor capable of communication with the receiving means and the pressure applying means; and

a second program logic executed by the second processor, comprising:

30 means for causing the pressure applying means to apply pressure to the fluid in accordance with the first set of data.

58. The system of claim 57, wherein the means for causing the pressure applying means to apply pressure is for automatically applying the pressure after receipt of the first set of data by the receiving means.

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59. The system of claim 57 further comprising means for providing a notification to the user,

wherein the first processor is further capable of communication with the notification means; and

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wherein the first program logic further comprises:

means for causing the notification means to notify the user of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the monitoring device communication circuit.

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60. The system of claim 57 further comprising means for providing a notification to the user,

wherein the first processor is further capable of communication with the notification means; and

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wherein the first program logic further comprises:

means for causing the notification means to notify the user of the completion of at least one event of the group consisting of: the measuring of the output signal produced by the sensor, the calculating of the amount of the fluid, and the transmitting of the first set of data by the monitoring device communication circuit.

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61. The system of claim 57 further comprising means for manually inputting a command,

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wherein the first processor is further capable of communication with the inputting means; and

wherein the means for causing the transmitting means to transmit the first set of data is for transmitting the first set of data in response to the command.

62. A medication infusion device for infusing a fluid into a body of a user and adapted for communications with a physiological monitoring device adapted to provide an output signal as a function of a concentration of an analyte in the user, calculate an amount of the fluid to be infused into the user's body based upon the output signal, and transmit a first set of data indicative of the amount of the fluid to be infused, the medication infusion device comprising:
- 10 means for receiving the first set of data from the monitoring device;
 - means for applying pressure to the fluid;
 - a processor capable of communication with the receiving means and the pressure applying means; and
 - program logic executed by the processor, said program logic comprising means for
 - 15 causing the pressure applying means to apply pressure to the fluid in accordance with the first set of data.

63. A physiological monitoring device adapted for communication with a medication infusion device for infusing a fluid into a body of a user, the physiological monitoring device comprising:
- 20 means for measuring an output signal as a function of a concentration of an analyte in the user;
 - means for transmitting data;
 - a processor capable of communication with the measuring means and the transmitting
 - 25 means; and
 - program logic executed by the processor, comprising:
 - means for calculating an amount of the fluid to be infused into the user's body based upon the output signal; and
 - means for causing the transmitting means to transmit a first set of data for
 - 30 reception by the infusion device, the first set of data being indicative of the amount of the fluid to be infused and adapted to cause the

infusion device to infuse the amount of the fluid into the body of the user.